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10/611,901	07/03/2003	Masahiko Kamijoh	236205US2	3608
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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER MORRISON, THOMAS A	
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3653

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Please find below and/or attached an Office communication concerning this application or proceeding.



## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/09/2006 has been entered.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-3, 5-6, 8-12, 14-19, 21-26 and 28-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In particular, independent claims 1, 10, 23, 24 and their dependent claims recite a tilt member comprising **a synthetic resin**, in which the tilt member includes a tilt face and a contact face each comprising **another synthetic resin**. Similarly, independent claim 17 and its dependent claims recite a tilt member comprising a

synthetic resin and another synthetic resin. The use of the **two** different **synthetic resins** as claimed was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-3, 5-6, 8-12, 14-19, 21-26 and 28-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More specifically, section 2173.05(h) of the MPEP states

#### I. MARKUSH GROUPS

Alternative expressions are permitted if they present ***no uncertainty or ambiguity*** with respect to the question of scope or clarity of the claims. One acceptable form of alternative expression, which is commonly referred to as a Markush group, recites members as being "selected from the group consisting of A, B and C." See Ex parte Markush, 1925 C.D. 126 (Comm'r Pat. 1925). Ex parte Markush sanctions claiming a genus expressed as a group consisting of certain specified materials. Inventions in metallurgy, refractories, ceramics, pharmacy, pharmacology and biology are most frequently claimed under the Markush formula but purely mechanical features or process steps may also be claimed by using the Markush style of claiming. See Ex parte Head, 214 USPQ 551 (Bd. App. 1981); In re Gaubert, 524 F.2d 1222, 187 USPQ 664 (CCPA 1975); and In re Harnisch, 631 F.2d 716, 206 USPQ 300 (CCPA 1980). ***It is improper to use the term "comprising" instead of "consisting of."*** Ex parte Dotter, 12 USPQ 382 (Bd. App. 1931). (emphasis added).

With regard to each of the Markush groups set forth in claims 1, 8, 9, 10, 16, 17, 23, 24 and their dependent claims, applicant improperly uses the term "comprising" instead of "consisting of", which makes these claims indefinite. See MPEP 2173.05(h).

Regarding claims 8 and 16, these claims appear to have conflicting limitations. How can the **entire tilt member** have **one** of the listed synthetic resins listed in claims 8 and 16 and also satisfy the requirements of the **two different** synthetic resins set forth in claims 1 and 10?

Regarding claim 17, it is unclear what is meant by the recited "said sheet separator tilt member comprising a synthetic resin, comprising: another synthetic resin..." Does the face have another synthetic resin?

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5-6, 8, 10-12, 14-19, 21-26 and 28-30 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent Publication No. 2002/0036377 (Togashi) in view of the article entitled "Application of Engineering Plastic Materials to Office Automation and Audio-Visual Appliances in Japan".

Regarding claim 1, Figs. 1-15 and 53 of Togashi show an image forming apparatus (30), including  
an image forming section (near 35); and  
a sheet feed apparatus (near 4) aligned to feed a sheet to the image forming section (near 35) and having a sheet feed roller (4) in pressing contact with an

uppermost sheet of a plurality of sheets, and a tilt member (6) comprising a first synthetic resin (numbered paragraph [0102]) and opposing the sheet feed roller (4), the tilt member (6) including a contact face (6b) in pressing contact with the sheet feed roller (4), and a tilt face (6a) in contact with an edge of the uppermost sheet.

Regarding claim 10, Figs. 1-15 and 53 of Togashi show a sheet feed apparatus (30), including

a sheet feed roller (4) in pressing contact with an uppermost sheet of a plurality of sheets; and

a tilt member (6) comprising a synthetic resin (numbered paragraph [0102]) and opposing the sheet feed roller (4), the tilt member (6) including a contact face (6b) in pressing contact with the sheet feed roller (4), and a tilt face (6a) in contact with an edge of the uppermost sheet.

Regarding the "entire tilt member" limitation in claims 8 and 16, as best understood, Figs. 4-7, 13-15 and 53 of Togashi show that the tilt member (6) is an entire tilt member.

Regarding claim 17, Figs. 1-15 and 53 of Togashi show a face for use in a sheet separator tilt member (6) of a sheet feed apparatus (including 4), the sheet separator tilt member (6) comprising a synthetic resin (numbered paragraph [0102]). Also, the face is at least one of a contact face (6b) and a tilt face (6a).

Regarding claim 23, Figs. 1-15 and 53 of Togashi show a sheet feed apparatus (including 4), having

means for sequentially feeding sheets (4) to an imaging device (35); and

means for separating individual sheets with a tilt member (6) comprising a synthetic resin (numbered paragraph [0102]) and a tilt face (6a) and a contact face (6b).

Regarding claim 24, Figs. 1-12 and 53 of Togashi show a method for feeding sheets to an imaging device, the improvement including

separating individual sheets with a tilt member (6) comprising a synthetic resin and a tilt face (6a) and a contact face (6b).

With regard to claims 1-3, 5-6, 8, 10-12, 14-19, 21-26 and 28-30, the numbered paragraph [0102] of Togashi also specifically discloses that the tilt member 6 has a complicated shape and that it is preferable that the tilt member 6 be integrally molded of a synthetic resin. Also, it is noted that in claims 1-3, 5-6, 8, 10-12, 14-19, 21-26 and 28-30 of the instant application, all of the materials listed for the region of the tilt face (6a) and the contact face (6b)(e.g., polybutylene terephthalate (PBT), polyethylene (PE), poly-ether-ether-ketone (PEEK), and polyimide (PI)) are synthetic resins. Moreover, Fig. 13 and the numbered paragraphs [0114] – [0115] of Togashi provide a general teaching of the advantages of using a different material (e.g., metal) in the region where the contact face (6b) and the tilt face (6a) are located than that of the rest of the tilt member (synthetic resin), because this region is **susceptible to abrasion**.

The article entitled "Application of Engineering Plastic Materials to Office Automation and Audio-Visual Appliances in Japan" explains specific benefits of using each one of the synthetic resins set forth in claims 1-3, 5-6, 8, 10-12, 14-19, 21-26 and 28-30 of the instant application. With regard to claims 1, 2, 8, 10, 11, 16, 17, 18, 23, 24, 25 and 30, this article explains the use of PBT in office automation (e.g., printers), and explains that PBT is suitable for injection molding and has good mechanical properties including large **abrasion resistance** and low friction resistance. See Introduction on page 5 and pages 8-9. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use PBT as the different material in the region of the tilt face and contact face to achieve large abrasion resistance, as taught by the article entitled "Application of Engineering Plastic Materials to Office Automation and Audio-Visual Appliances in Japan". It would be obvious to provide PBT plastic rather than the metal disclosed in Togashi in the region of the tilt face and the contact face, because plastic is a well known substitute for reducing manufacturing cost. For claim 30, Fig. 1 and page 6 of this article also disclose characteristics of PBT reinforced with glass ("PBT/GF") and disclose the improvements in tensile strength, rigidity and dimensional stability when glass fiber is added to such plastic. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use glass reinforced PBT as the different material in order to get improved tensile strength, rigidity and dimensional stability, as taught by the article entitled "Application of Engineering Plastic Materials to Office Automation and Audio-Visual Appliances in Japan".

Similarly, with regard to claims 1, 3, 8, 10, 12, 16, 17, 19, 23, 24 and 26, this article explains the use of PE in office automation, and explains that PE has advantages (e.g., compared to PBT) as to **mechanical strength**, heat-resistance and **surface hardness**. See page 9 of this article. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use PE as the different material in the region with the tilt face and contact face, in order to get sufficient mechanical strength and surface hardness, as taught by the article entitled "Application of Engineering Plastic Materials to Office Automation and Audio-Visual Appliances in Japan". As mentioned above, the use of plastic rather than metal in the region of the tilt face and the contact face offers a well known substitute to reduce manufacturing cost.

Also, with regard to claims 1, 5, 8, 10, 14, 16, 17, 21, 23, 24 and 28, this article explains the use of PEEK in office automation, and explains that PEEK is one of the super-engineering plastics with outstanding heat-resistance and **superior mechanical properties**. See page 10 of this article. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use PEEK as the different material in the region with the tilt face and contact face in order to achieve superior mechanical properties in this region, as taught by the article entitled "Application of Engineering Plastic Materials to Office Automation and Audio-Visual Appliances in Japan". Again, the use of plastic rather than metal in the region of the tilt face and the contact face also offers a well known substitute to reduce manufacturing cost.

Finally, with regard to claims 1, 6, 8, 10, 15, 16, 17, 22, 23, 24 and 29, this article explains the use of PI in office automation, and explains that PI can be characterized by

the **best balance of heat resistance to mechanical properties**. See pages 11-12 of this article. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use PI as the different material in the region with the tilt face and contact face, in order to get the best balance of heat resistance to mechanical properties in this region, as taught by the article entitled "Application of Engineering Plastic Materials to Office Automation and Audio-Visual Appliances in Japan". Again, the use of plastic rather than metal in the region of the tilt face and the contact face also offers a well known substitute to reduce manufacturing cost.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0036377 (Togashi) and the article entitled "Application of Engineering Plastic Materials to Office Automation and Audio-Visual Appliances in Japan" as applied to claim 8 above, and further in view of U.S. Patent No. 6,688,590 (Billings et al.). Fig. 2 of U.S. Patent Publication No. 2002/0036377 shows a support member (10) with guides (8) that support a tilt member (6), but does not specifically disclose that the support member (10) comprises one of the claimed materials.

Billings et al. discloses that it is well known in the art to form a support (32) from ABS plastic. See, e.g., column 4, lines 42-46. It would have been obvious to one of ordinary skill in the art at the time of the invention, to provide the apparatus of U.S. Patent Publication No. 2002/0036377 with a support that includes ABS, e.g., to provide sufficient strength characteristics for the support.

6. Claims 1, 3, 8, 10, 12, 16, 17, 19, 23, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0036377 (Togashi) in view of Japanese Publication No. 2002-68511.

Regarding claims 1, Figs. 1-15 and 53 of Togashi show an image forming apparatus (30), including

an image forming section (near 35); and

a sheet feed apparatus (near 4) aligned to feed a sheet to the image forming section (near 35) and having

a sheet feed roller (4) in pressing contact with an uppermost sheet of a plurality of sheets, and

a tilt member (6) comprising a first synthetic resin (numbered paragraph [0102]) and opposing the sheet feed roller (4), the tilt member (6) including a contact face (6b) in pressing contact with the sheet feed roller (4), and a tilt face (6a) in contact with an edge of the uppermost sheet.

Regarding claim 10, Figs. 1-15 and 53 of Togashi show a sheet feed apparatus (30), including

a sheet feed roller (4) in pressing contact with an uppermost sheet of a plurality of sheets; and

a tilt member (6) comprising a synthetic resin and opposing the sheet feed roller (4), the tilt member (6) including a contact face (6b) in pressing contact with the sheet feed roller (4), and a tilt face (6a) in contact with an edge of the uppermost sheet.

Regarding the "entire tilt member" limitation in claims 8 and 16, as best understood, Figs. 4-7, 13-15 and 53 of Togashi show that the tilt member (6) is an entire tilt member.

Regarding claim 17, Figs. 1-15 and 53 of Togashi show a face for use in a sheet separator tilt member (6) of a sheet feed apparatus (including 4), the sheet separator tilt member (6) comprising a synthetic resin (numbered paragraph [0102]), wherein the face is both a tilt face (6a) and a contact face (6b).

Regarding claim 23, Figs. 1-15 and 53 of Togashi show a sheet feed apparatus (including 4), having

means for sequentially feeding sheets (4) to an imaging device (35); and

means for separating individual sheets with a tilt member (6) comprising a synthetic resin (numbered paragraph [0102]) and a tilt face (6a) and a contact face (6b).

Regarding claim 24, Figs. 1-12 and 53 of Togashi show a method for feeding sheets to an imaging device, the improvement including

separating individual sheets with a tilt member (6) comprising a synthetic resin and a tilt face (6a) and a contact face (6b).

With regard to claims 1, 3, 8, 10, 12, 16, 17, 19, 23, 24 and 26, the numbered paragraph [0102] of Togashi specifically discloses that the tilt member 6 has a complicated shape and that it is preferable that the tilt member 6 be integrally molded of

a synthetic resin. Also, it is noted that in claims 1, 3, 8, 10, 12, 16, 17, 19, 23, 24 and 26 of the instant application, all of the materials listed for the tilt face (6a) and the contact face (6b) of the tilt member (6) (e.g., polyethylene (PE)) are synthetic resins. Moreover, Fig. 13 and the numbered paragraphs [0114] – [0115] of Togashi provide a general teaching of the advantages of using a different material (e.g., metal) in the region where the contact face (6b) and the tilt face (6a) are located than that of the rest of the tilt member (synthetic resin), because this region is **susceptible to abrasion**.

In addition, Japanese Publication No. 2002-068511 discloses that it is well known to provide a sheet feeder with a separator (1) portion comprising **polyethylene**, in order to provide excellent **abrasion resistance** and a proper friction coefficient. See English abstract. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use PE as the different material in the region with the tilt face and contact face in order to achieve the proper abrasion resistance and friction coefficient, as taught by Japanese Publication No. 2002-068511. It would be obvious to provide PE plastic rather than the metal disclosed in Togashi in the region of the tilt face and the contact face, because plastic is a well known substitute for reducing manufacturing cost.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki can be reached on (571) 272-6951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

03/15/2006

  
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